

Model for Camel IgG 3

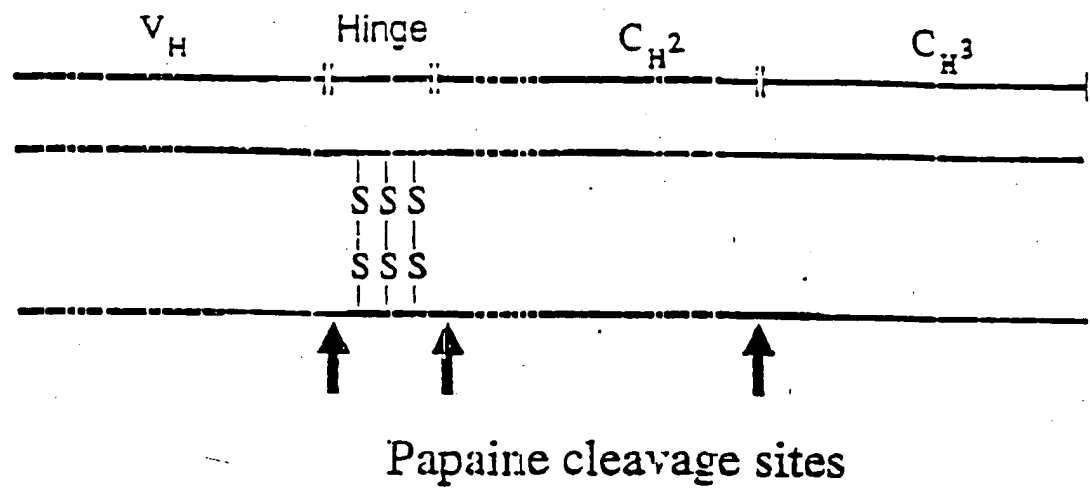


Fig 5: Schematic representation of Camel IgG₃ model.

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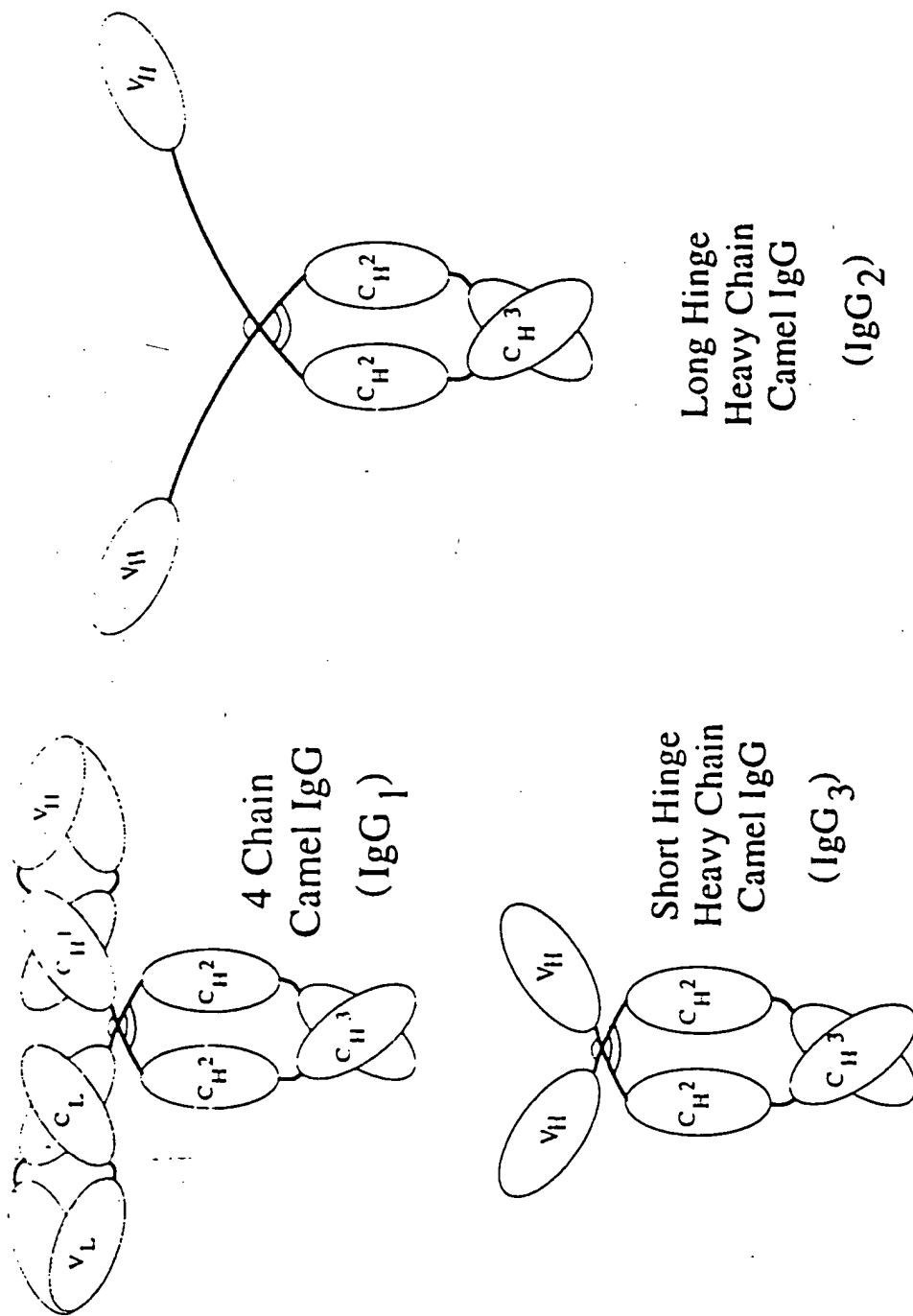


Fig 6 : A schematic representation of Camel immunoglobulins IgG₁, the putative IgG₂ and IgG₃. The large (Pro-X)₁₂ of the putative IgG₂ molecule can be modelled into a 6 aa repeat

DR01006 C-----TCGAG---TCTGGGGGAGG
 DR27006 C-----TCGAG---TCTGGGGGAGG
 DR03006 C-----AGGTGA-----AACTGCTCGAG---TCTGGAGGAGG
 DR11006 C-----TCGAG---TCTGGGGGAGG
 DR24006 C-----AGGTGA-----AACTGCTCGAG---TCTGGGGGAGG
 DR16006 C-----TCGAG---TCTGGAGGAGG
 DR19006 C-----TCGAG---TCTGGAGGAGG
 DR07006 C-----TCGAG---TCTGGGGGAGG
 DR16006 C-----TCGAG---TCTGGGGGAGG
 DR20006 C-----TCGAG---TCAGGGGGAGG
 DR25006 C-----TCGAG---TCTGGGGGAGG
 DR20006 C-----TCGAG---TCTGGAGGAGG
 DR21006 C-----TCGAG---TCTGGGGGAGG
 DR09006 C-----AGGTGA-----AACTGCTCGAG---TCTGGGGGAGG
 DR17006 C-----TCGAG---TCTGGGGGAGG
 DR13006 C-----TCGAG---TCAGGGGGAGG
 DR02006 CTCGAGTCAGGTGTCCGGTCTGATGTGCAGCTGGTGGCGTCTGGGGGAGG

DR11006 ATCGGTGCAGGCTGGAGGGTCTCTGAGACTCTC--GTGCG-CAGCCTCTG
 DR07006 CTCGGTGCAGGCTGGAGGGTCTCTGAGACTCTCCTGTGCATCTTCTTCTA
 DR13006 CTCGGTGCAGACTGGAGGATCTCTGAGACTCTCCTGTGCAGT--C-TCTG
 DR11006 GTCGGTGCAGGCTGGAGGGTCTCTGAGACTCTCCTGTAATGT--C-TCTG
 DR04006 GTCGGTGCAGGCTGGAGGGTCTCTGAGACTCTCCTGTAATGT--C-TCTG
 DR16006 CTCGGCGCAGGCTGGAGGATCTCTGAGACTCTCCTGTGCAGC--CCACGG
 DR19006 CTCGGTTCAGGCTGGAGGGTCCCTTAGACTCTCCTGTGCAGC--C-TCTG
 DR07006 CTCGGTGCAGGGTGGAGGGTCTCTGAGACTCTCCTGTGCAA---TCTCTG
 DR16006 CTCGGTGCAGGCTGGAGGGTCTCTGAGACTCTCCTGTACAG---GCTCTG
 DR20006 CTCGGTACAGGTTGGAGGGTCTCTGAGACTCTCCTGTGTAG---CCTCTA
 DR25006 CTCGGTACAACTGGAGGGTCTCTGAGACTCTCTTGCG---AAATCTCTG
 DR00006 CTCGGTGCAGGCTGGAGGGTCTCTGAGACTCTCCTGTG---TAGCCTCTG
 DR11006 CTCGGTGCAGGTTGGAGGGTCTCTGAAACTCTCCTGTAAAT---CTCTG
 DR09006 CTCGGTGCAGGCTGGGGGGTCTCTGACACTCTCTTGTTG---TATACAC--
 DR17006 CTCGGTCCAACCTGGAGGATCTCTGACACTCTCCTGTACAGTT---TCTG
 DR13006 CTCGGTGGAGGCTGGAGGGTCTCTGAGACTCTCCTGTACAG---CCTCTG
 DR02006 CTCGGTGCAGGCTGGAGGGTCTCTGAGACTCTCCTGTACAG---CCTCTG

DR01006 GA--TACAGTAATT---GTCCCCTCACTTG-GAGCTGGTATCGCCAGTTT
 DR27006 AA--TATATGCCTT---GCACCTACGACAT-GACCTGGTACCGCCAGGCT
 DR03006 GA--TTCTCCTTTA---GTACCAGTTGTAT-GGCCTGGTTCCGCCAGGCT
 DR11006 GC--TCTCCCAGTA---GTACTTATTGCCT-GGGCTGGTTCCGCCAGGCT
 DR24006 GC--TCTCCCAGTA---GTACTTATTGCCT-GGGCTGGTTCCGCCAGGCT
 DR16006 GA--TTCCGC-TCA---ATGGTTACTACAT-CGCCTGGTTCCGTCAGGCT
 DR19006 AC--TACACCATCA---CTGATTATTGCAT-GGCCTGGTTCCGCCAGGCT
 DR07006 GA--TACACGTACG---GTAGCTTCTGTAT-GGGCTGGTTCCGCCAGGCT
 DR16006 GA--TTCCCCTATA---GTACCTTCTGTCT-GGGGTGGTTCCGCCAGGCT
 DR20006 CT--CACACCGACA---GTAGCACCTGTAT-AGGCTGGTTCCGCCAGGCT
 DR25006 GA--TTGACTTTTG---ATGATTCTGACGT-GGGGTGGTACCGCCAGGCT
 DR20006 GA--TTCAATTTTCG---AACTTCTCGTAT-GGCGTGGTACCGCCAGACT
 DR21006 GAGGTACCCCAGATCGTGTTCCTAAATCTTTGGCCTGGTTCCGCCAGGCT

DR09006 -----CAACGATACTGGGACCA-----TGGGATGGTTTCGGCCAGGCT
 DR17006 --GGGCGACCTACA---GTGACTACAGTATTGGA-TGGATCGGGCCAGGCT
 DR13006 G-----ATAGGTAT-CCT----CTATGGCCTGGTTCCGGCCAGGCT
 DR02006 GAGA----CAGTTTCAGTAGATT--TGCCATGTCTTGGTTCCGGCCAGGCT

DR01006 CCAGGAACGGAGCGCGAGTTTCGTCTCCAGTATGGATCCGGATGGAAATAC
 DR27006 CCAGGCAAGGAGCGCGAATTTGTCTCAAGTATAAATATTGATGGTAAGAC
 DR03006 TCAGGAAAGCAGCGTGAGGGGGTTCGACGCCATTAATAGTGGCGGTGGTAG
 DR11006 CCAGGGAGGGAGCGTGAGGGGGTTCACAGCGATTAA-----CACTGATGG
 DR24006 CCAGGGAAGGAGCGTGAGGGGGTTCACAGCGATTAA-----CACTGATGG
 DR16006 CCTGGGAAGGGGCGTGAGGGGGTTCGCAACAATTAATGGTGGTTCG-----
 DR19006 CCAGGGAAGGAGCGTGAATTGGTTCGACGCGATTCAAGTTGTCCGTAGTGA
 DR07006 CCAGGCAAGGAACGTGAGGGGATCGCAACTATTCTTAATGGTGGTACTAA
 DR16006 CCAGGGAAGGAGCGTGAGGGGGTTCGCGGGTATTAATAGTGCAGGAGGTAA
 DR20006 CCAGGGAAGGAGCGCGAGGGGGTTCGCAAGTATATATTTTGGTGTGGTGG
 DR25006 CCAGGGCATGAGTGCAAAATTGGTCTCAGGTATTCAGTGTATGGTACT-C
 DR20006 CCAGGAAATGTGTGTGAGTTGGTCTCAAGTATTTACAGTGTATGG-----
 DR21006 CCAGAGAAGGAGCGCGAGGGGATCGCAGTTCTTTTCGACTAAGGATGGTAA
 DR09006 CCAGGGAAGAGTGCAGAAAGGGTTCGCGCATATTACGCCTGATGGTATGA-
 DR17006 CCAGGGAAGGACCGTGAAGTAGTTCGACGCCGCTAATACTGGTG-----
 DR13006 CCAGGGCAGGAGCGCGAGGGGGTTCGCGTTTGTTCAAACGG-----
 DR02006 CCAGGGAAGGAGTGCAGAAATTGGTCTCAAGCATTCAAAGTAATGGAAGGAC

DR01006 CAAGTACA-----CATACTCCGTGAAGGGCCGCTTCACC
 DR27006 AACATACG-----CAGACTCCGTGAAGGGCCGATTTCACC
 DR03006 GACATACTA-CAACACATATGTCGCCGAGTCCGTGAAGGGCCGATTTCGCC
 DR11006 CAGTATCAT-ATACGCA-----GCCGACTCCGTGAAGGGCCGATTTCACC
 DR24006 CAGTGTCTAT-ATACGCA-----GCCGACTCCGTGAAGGGCCGATTTCACC
 DR16006 -----CGA-CGTACATACTACGCCGACTCCGTGACGGGCCGATTTACC
 DR19006 TACT--CGC-C-TCACAGACTACGCCGACTCCGTGAAGGGACGATTTCACC
 DR07006 -----CACATACTATGCCGACTCCGTGAAGGGCCGATTTCACC
 DR16006 -----TACTTACTATGCCGACGCCGTGAAGGGCCGATTTCACC
 DR20006 -----TACGAATTATCGCGACTCCGTGAAGGGCCGATTTCACC
 DR25006 CATATACAAAGAGTGGAGACTATGCTGAGTCTGTGAGGGGCCGGTTACC
 DR20006 CA-AAACATACTACGTCGACC--GCA-----TGAAGGGCCGATTTCACC
 DR21006 GA-----CATTCTATGCCGACTCCGTGAAGGGCCGATTTCACC
 DR09006 -----CCTTCATTGATGAACCCGTGAAGGGGCCGATTTCAG
 DR17006 -----CGACTAGTAAATTCTACGTCGACTTTGTGAAGGGCCGATTTCACC
 DR13006 --CTGACAAT-AGTGCATTATATGGCGACTCCGTGAAGGGCCGATTTCACC
 DR02006 AACTGA-----GGCCGATTCCGTGCAAGGGCCGATTTCACC

DR01006 ATGTCCCGAGGCAGCACCGAGTACACAGTATTTCTGCAAATGGACAATCT
 DR27006 ATCTCCCAAGACAGCGCCAAGAACACGGTGTATCTGCAGATGAACAGCCT
 DR03006 ATCTCCCAAGACACCGCCAAGACCACGGTATATCTTGATATGAACAACCT
 DR11006 ATCTCCCAAGACACCGCCAAGGAAACGGTACATCTCCAGATGAACAACCT
 DR24006 ATCTCCCAAGACACCGCCAAGAAACGGTATATCTCCAGATGAACAACCT
 DR16006 ATCTCCCGAGACAGCCCCAAGAATACGGTGTATCTGCAGATGAACAGCCT
 DR19006 ATCTCCCAAGGCAACACCAAGAACACAGTGAATCTGCAAATGAACAGCCT
 DR07006 ATCTCCCAAGACAGCACGTTGAAGACGATGTATCTGCTAATGAACAACCT
 DR16006 ATCTCCCAAGGGAATGCCAAGAATACGGTGTCTTCTGCAAATGGATAACTT
 DR20006 ATCTCCCAACTCAACGCCCAGAACACAGTGTATCTGCAAATGAACAGCCT
 DR25006 ATCTCCAGAGACAACGCCAAGAATACATGATATACCTTCAAATGAACAGCCT
 DR20006 ATTTCTAGAGAGAATGCCAAGAATACATTGTATCTACAACCTGAGCGGCCT
 DR21006 ATCTTCTTAGATAATGACAAGACCACTTTCTCCTTACAACCTGATCGACT
 DR09006 ATCTCCCGAGACAACGCCCCAGAAACGTTGTCTTTGCGAATGAATAGTCT

DR17006 ATTTCCCAAGACAAAGGCCAAGAATACGGTATATCTGCAAAATGAGGTTTCT
 DR13006 ATCTCCCAAGACAAAGGCCAAGAACACGCTGTATCTGCAAAATGCGCAACCT
 DR02006 ATCTCCCAAGACAAATTCAGGACACAGTGTATCTGCAAAATGACAGGCT

DR01006 GAAACCTGAGGACACGGCGATGTATTACTGTAAAAC-A---GCCCTAC--
 DR27006 GAAACCTGAGGACACGGCGATGTATTACTGTAAAAT-A---GA--TTC--
 DR03006 AACCCCTGAAGACACGGCTACGTATTACTGTGCGGCGG---TCCCAGCCC
 DR11006 GCAACCTGAGGATACGGCCACCTATTACTGCGCGGCAA---GACTGACGG
 DR24006 GCAACCTGAGGATACGGCCACCTATTACTGCGCGGCAA---GACTGACGG
 DR16006 GAAACCTGAGGACACGGCCATCTACTTCTGTGCAGCAG---G-----CTC
 DR19006 GACACCTGAGGACACGGCCATCTACAGTTGTGCGGCAA---C-----CAG
 DR07006 GAAACCTGAAGACACGGGCACCTATTACTGTGCTG-CA---GAACTAAGT
 DR16006 GAAACCTGAGGACACGGCCATCTATTACTGCGCGG-CG---GATAGTCCA
 DR20006 GAAACCTGAGGACACGGCCATGTACTACTGTGCAATCA---CTGAAATTG
 DR25006 GAAACCTGAGGACACGGCCATGTATTACTGCGCGGTAGATGGTTGGACCC
 DR20006 CAAACCTGAGGACACGGCCATGTATTACTGTGCG-----CC
 DR21006 GAACCCGGAGGACACTGCCGACTACTACTGCGCTGCAAATCAATTAGC--
 DR09006 GAGGCCTGAGGACACGGCCGTGTATTACTGTGCGGCAGATTG-----
 DR17006 GAAACCTGAGGACACGGCCATCTATTACTGTGCGGCAG-----CGGACCC
 DR13006 GCAACCTGACGACACTGGCGTGTACTACTGTGCGGCC-----CAA
 DR02006 GAAACCCGAGGACACGGCCGTGTATTACTGTGGGGCAGT-----

DR01006 -----A-AC--CTGGGGGTTATTGTGGGTA-
 DR27006 -----GTAC--CCGTGCCATCTCCTTGATG-
 DR03006 ACTTGGGACCT-----GGCG-CCATT-----CTTGATTGT
 DR11006 AGATGGGGGCTTGTGATGCGAGATGGGCGACCTTAGC--GACAAGGAC-G
 DR24006 AGATGGGGGCTTGTGATGCGAGATGGGCGACCTTAGC--GACAAGGAC-G
 DR16006 GCGTTTTT-CTAGTCCTGTGTTGGGAGCACTTC-TAGAC--TCGAAAGTAG
 DR19006 TAGTTTTTACTGGTACT-----GCAC-----C---ACG-----G
 DR07006 GGTGGTAGTTGTGAATTGC---CTTTGC-----TATTTGACTA-----
 DR16006 TGTTACATGCCGACTATGC---CCGCTCCCCGATACGAGACAGTTTTGG
 DR20006 AGTGGTATGGGTGCAATTT---AAGGACTACTTTTACT---C-----G
 DR25006 GGAAGGAAG--GGGGAATCGGGTTAC---CCTGGTCGGTCCAATGTGAA
 DR20006 GGTTGAA-----TATC---CTATTGCAGAC--ATGTGTT
 DR21006 ---TGGTGGCTGGTATT-----TGGACCCGAATTACTGG-CTCTCTGTG
 DR09006 ---GAAATACTGGA---CTTGTGGTGC--CCAGA-CTGG-----AG
 DR17006 AAGTATATATTATAGTATC-----CTCCNNAT-----
 DR13006 AAGAAGGATCGTA-----CTAGATGGGC-----CGAGCCT-----
 DR02006 -----CTCCCTAA--TGGACCGAATTTCT

DR01006 --TGGGTANTGCCTCTGGGGCCAGGGGACCCAGGTCACCGTCTCCTCACT
 DR27006 --T-----CTGGGGCCAGGGGACCCAGGTCACCGTCTCCTCACT
 DR03006 AAAAAGTATAAGTACTGGGGCCAGGGGACCCAGGTCACCGTCTCCTCACT
 DR11006 TTTGCGTATAACTACTGGGGCCGGGGGACCCAGGTCACCGTCTCCTCACT
 DR24006 TTTGCGTATAACTACTGGGGCCGGGGGACCCAGGTCACCGTCTCCTCACT
 DR16006 CGA-CT-ATAACTATTGGGGCCAGGGGATCCAGGTCACCGTCACTCACT
 DR19006 CGC-CTTATAACGTCTGGGGTCAGGGGACCCAGGTCACCGTCTCCTCACT
 DR07006 CTGGG-----GCCAGGGACCCAGGTCACCGTCTCCTCACT
 DR16006 CTGGGATGATTTT-----GGCCAGGGGACCCAGGTCACCGTCTCCTCACT
 DR20006 CTGGG-----GCCAGGGGACCCAGGTCACCGTCTCCTCACT
 DR25006 GATGGTTATAACTATTGGGGCCAGGGGACCCAGGTCACCGTCTCCTCAC-
 DR20006 CGAGAT---ACG---GCGACCCGGGGACCCAGGTCACCGTCTCCTCAC-
 DR21006 GGTGCATATGCCATCTGGGGCCAGGGGACCCAGGTCACCGTCTCCTCAC-
 DR09006 GATACTTCGGACAG-TGGGGTCAGGGGGCCAGGTCACCGTCTCCTCACT
 DR17006 --TGAGTATAAGTACTGGGGCCAGGGGACCCAGGTCACCGTCTCCTCA--

FIGURE 7(3)

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DR13006 CGAGAATGGAACTGAGGGCCAGGGGACCCAGGTCACCGTCTCTCTCA--
 DR02006 CCAACATGGG--TSCCGGGGGCCAGGGACCCAGGTCACCGTCTCTCT----

DR01006 AG----TTACCCGTACGACGTTCCGGACTACGGTTCCTTAATAGAATTC
 DR27006 AG----TTACCCGTACGAGCTTCCGGACTACGGTTCCTTAATAGAATTC
 DR03006 AGCTAGTTACCCGTACGACGTTCCGGACTACGGTTCCTTAATAGAATTC
 DR11006 AG----TTACCCGTACGACGTTCCGGACTACGGTTCCTTAATAGAATTC
 DR24006 AGCTAGTTACCCGTACGACGTTCCGGACTACGGTTCCTTAATAGAATTC
 DF16006 ----AGTTACCCGTACGACGTTCCGGACTACGGTTCCTTAATAGAATTC
 DR19006 ----AGTTACCCGTACGACGTTCCGGACTACGGTTCCTTAATAGAATTC
 DR07006 ----AGTTACCCGTACGACGTTCCGGACTACGGTTCCTTAATAGAATTC
 DR16006 ----AGTTACCCGTACGACGTTCCGGACTACGGTTCCTTAATAGAATTC
 DR20006 ----AGTTACCCGTACGACGTTCCGGACTACGGTTCCTTAATAGAATTC
 DR25006 ---TAGTTACCCGTACGACGTTCCGGACTACGGTTCCTTAATAGAATTC
 DR28006 ---TAGTTACCCGTACGACGAACCGGACTACGGTTCCTTAATAGAATTC
 DR11006 ---TAGTTACCCGTACGACGTTCCGGACTACGGTTCCTTAATAGAATTC
 DR09006 AGCTAGTTACCCGTACGACGTTCCGGACTACGGTTCCTTAATAGAATTC
 DR17006 -----
 DR13006 -----
 DR02006 -----TA

FIGURE 7(4)

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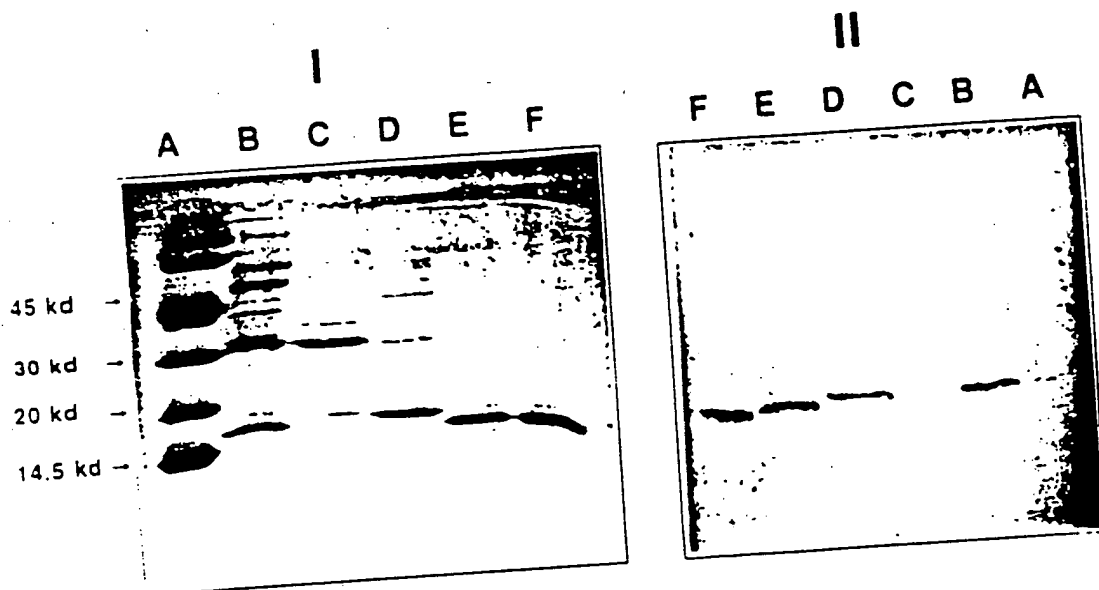


FIGURE 8

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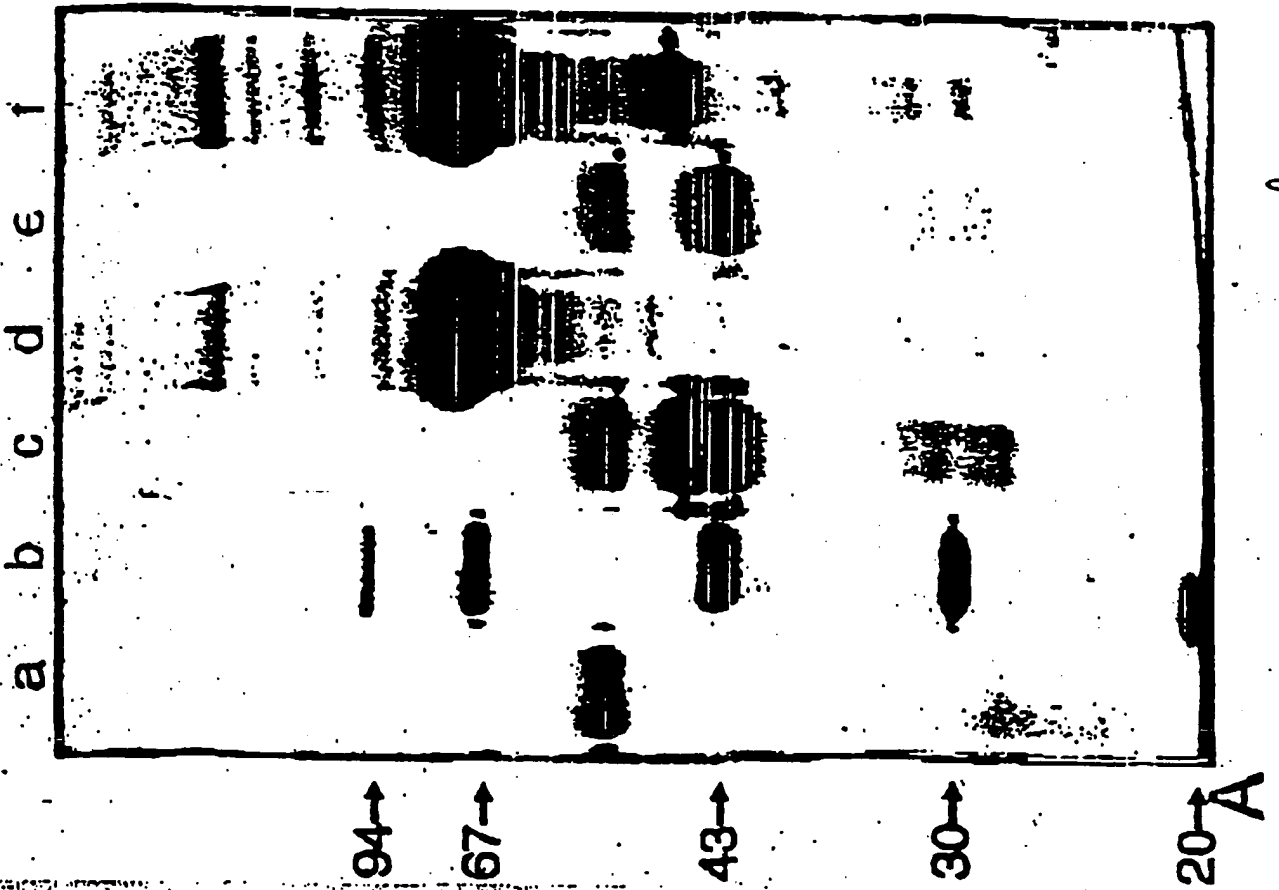
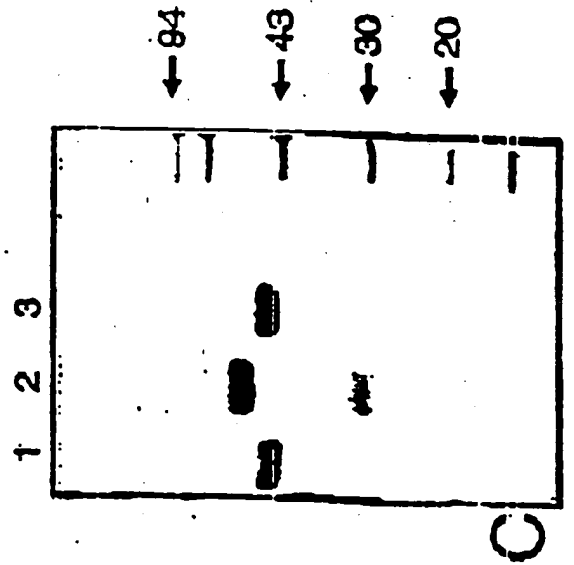
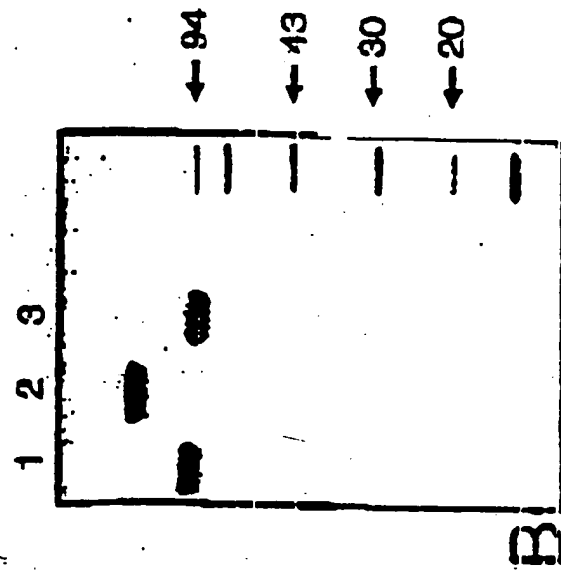
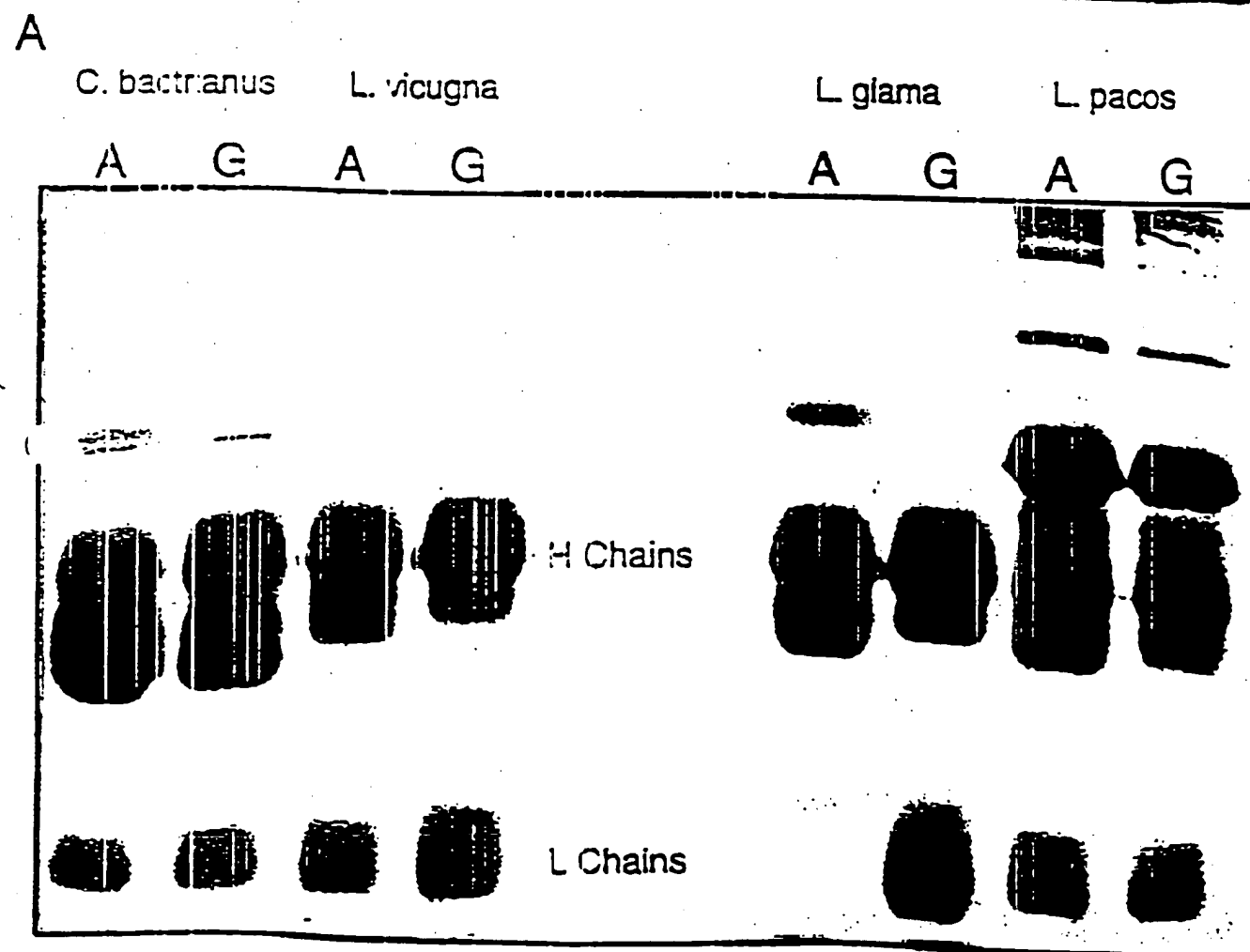
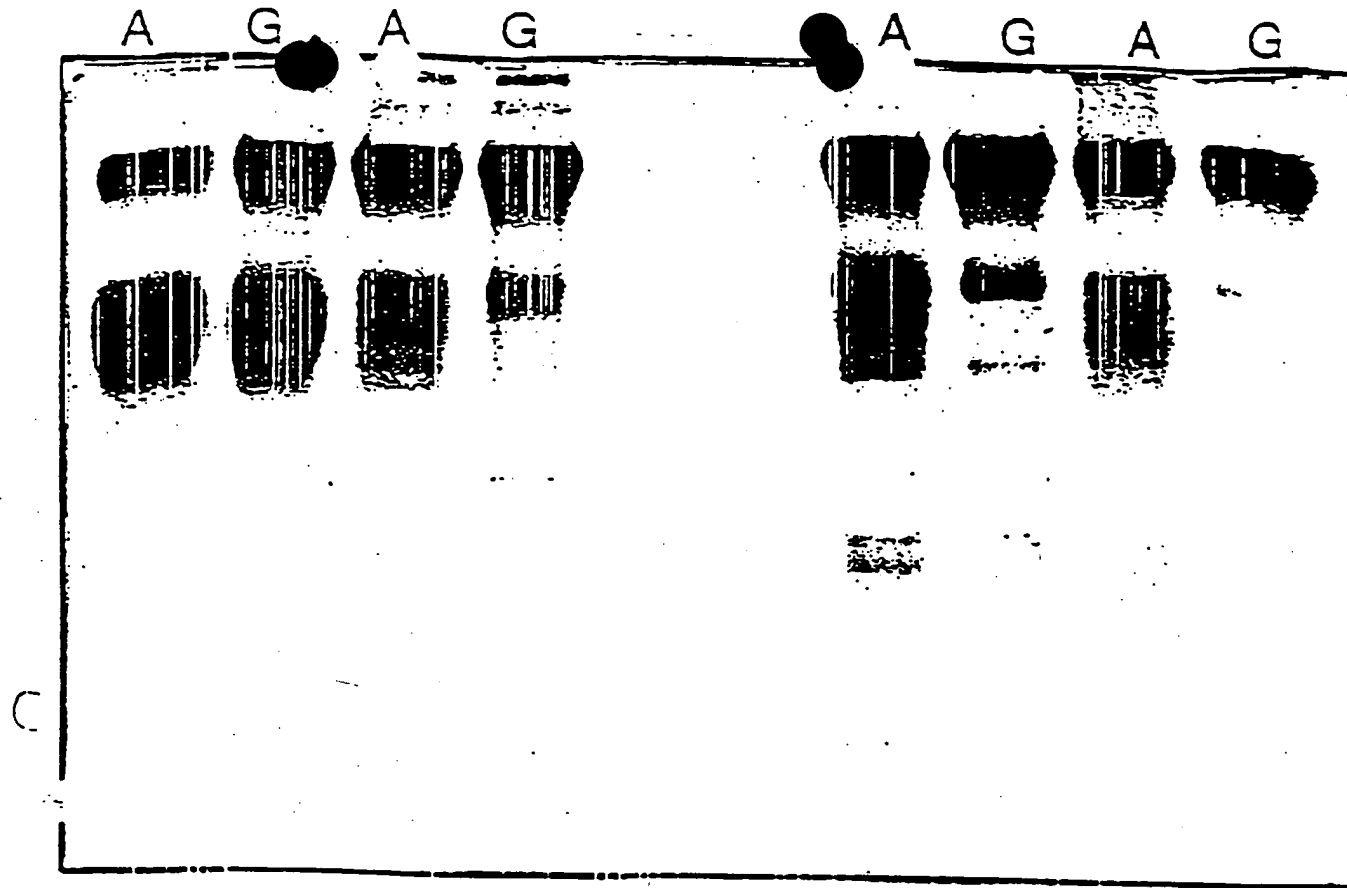
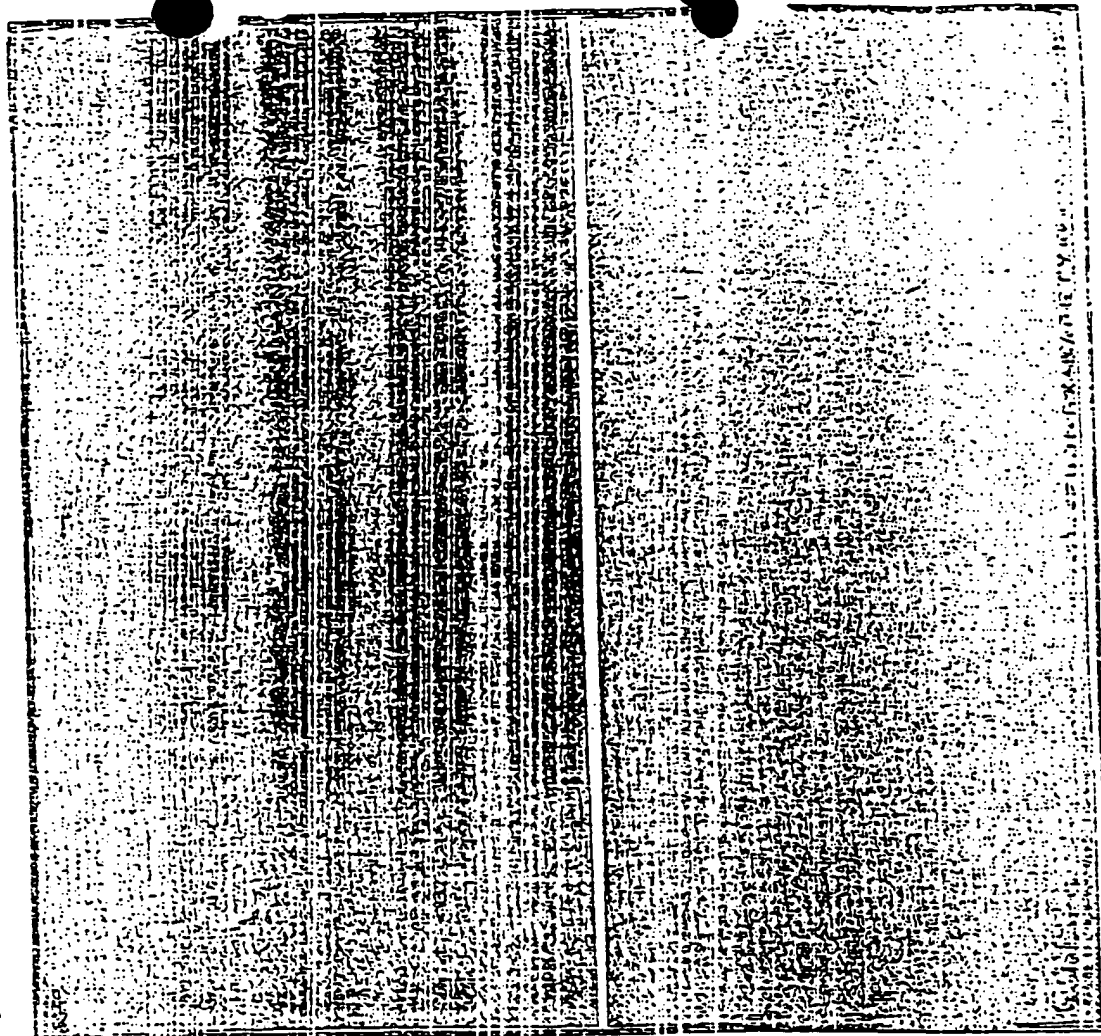


figure 1



B

A



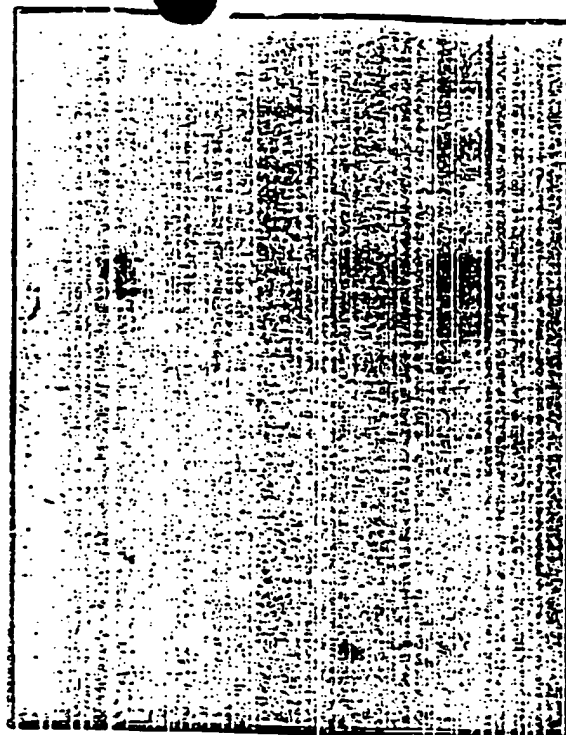
Prot. A	Ig1	Ig2	Ig3	Tot.Ser	Ig1	Ig2	Ig3	Tot.Ser	
Control	T. evansi infected				Healthy				
Counts/5ul	65	1256	1214	2700	2978	147	157	160	107

figure 3 (1)

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3

B



← 94

← 67

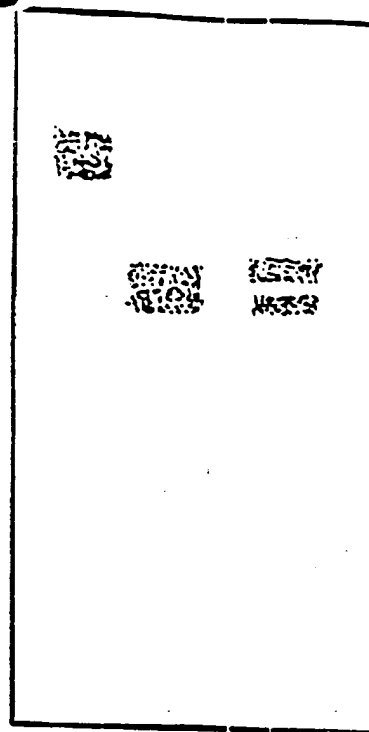
← 43

Ig1 Ig2 Ig3

Ig1 Ig2 Ig3

-healthy

T. evansi infected



Ig1

Ig2

Ig3

Ponceau Red

figure 3 (2)

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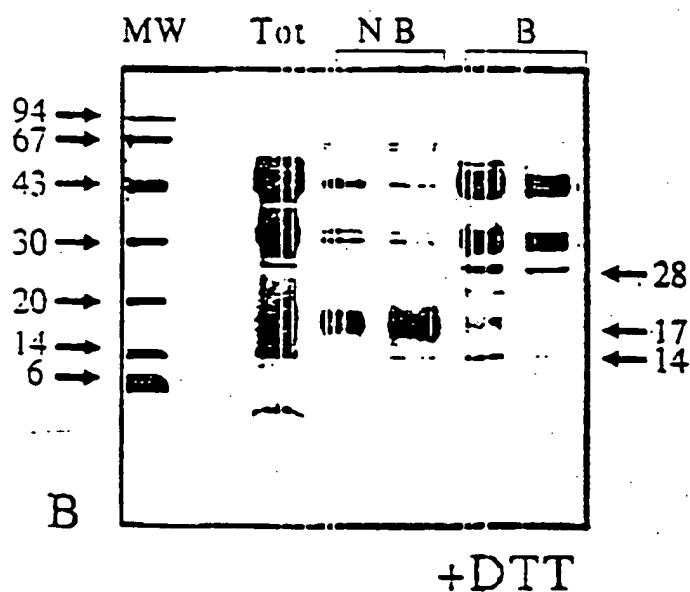
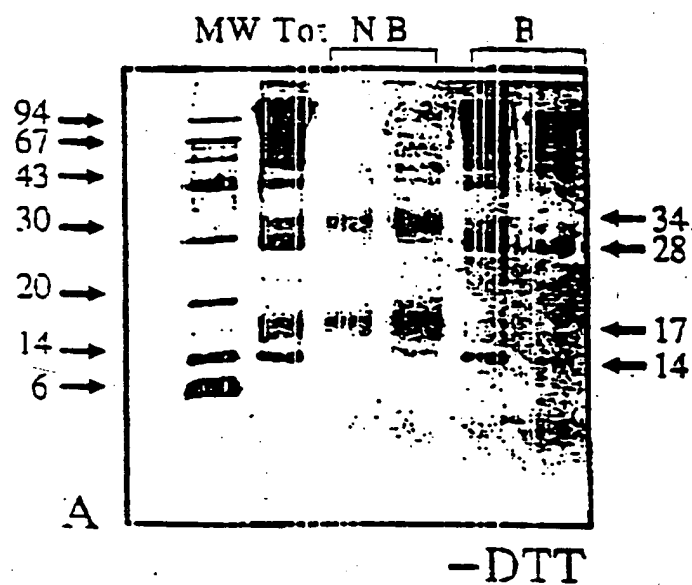


Fig 4 Analysis of IgG₃ Papain Fragments by SDS - PAGE